19-11

Drain Pumping

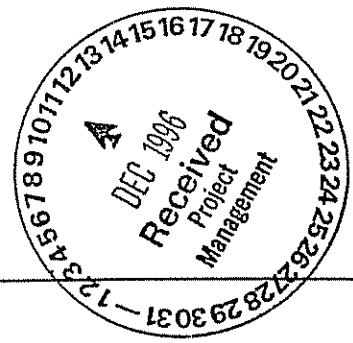
Biological Assessment

Prepared for

Emergency Salton Sea Project
Imperial Irrigation District

DECEMBER 1996

CH2M HILL
1111 Broadway, Suite 1200
Oakland, CA 94607



Contents

Contents (Continued)

1. Introduction

This Biological Assessment is provided to facilitate consultation between the U.S. Army Corps of Engineers (Corps), the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG) under the Federal and California Endangered Species Acts, respectively. The purpose of this document is to assess impacts of the Emergency Salton Sea Project proposed by the Imperial Irrigation District (IID). This Biological Assessment (BA) provides information regarding potential project impacts and species accounts describing the distribution and status of listed, proposed, and candidate species that may occur at the Salton Sea and in the Imperial Valley of California.

The information is presented in the following order:

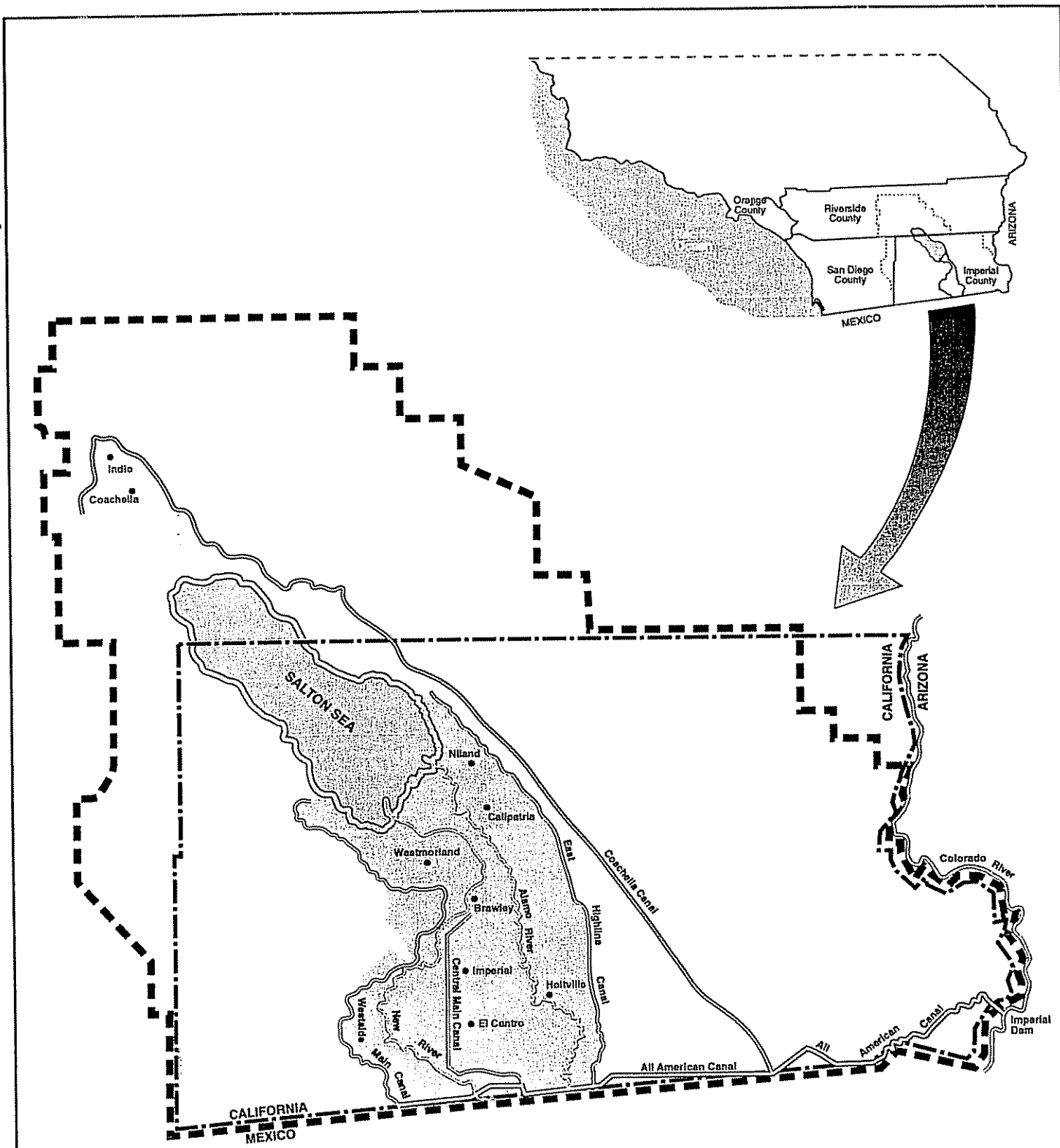
- This section provides the project background and describes the need for the project as well as the applicable regulatory framework.
- Section 2 presents a description of the proposed project.
- Section 3 describes the affected environment.
- Section 4 gives an account of the special status plants and animals potentially occurring in the project area.
- Section 5 identifies the types of potential project impacts.
- Section 6 provides an impact analysis for the special status species potentially affected by the proposed project.
- Sections 7 presents the project alternatives.
- Section 8 describes possible mitigation measures.

1.1 Background

IID is located in Imperial County, California, and discharges agricultural run-off through irrigation drains to the Salton Sea (Figure 1-1). The Salton Sea is an inland salt water lake, the largest lake in California, with an area of approximately 245,000 acres at the current elevation. Since the Salton Sea was formed in 1905-1907, the water level has been maintained by the agricultural drainage from about 550,000 acres of irrigated land in the Imperial and Coachella Valleys. Agricultural and industrial drainage flows from Mexico also contribute to the Salton Sea via the New River. Drainage flows from Mexico contribute, on average, about 13.5 percent of the annual inflow to the Sea over the last 20 years.

The water surface elevation of the Salton Sea has historically increased and declined on an annual cycle in response to rainfall and irrigation practices (Figure 1-2). Highest levels are

SCW 30331.D0.ZZ Fig 2.1-1 Site Location Map 03-28-94sbm



= IID Water Service Area

= IID Power Service Area

= Imperial County

N

SCALE IN MILES

0 10 20 30 40 50

Figure 1-1
Vicinity Map

110099.E0.ZZ VicinityMapRvd. 11/95 pm

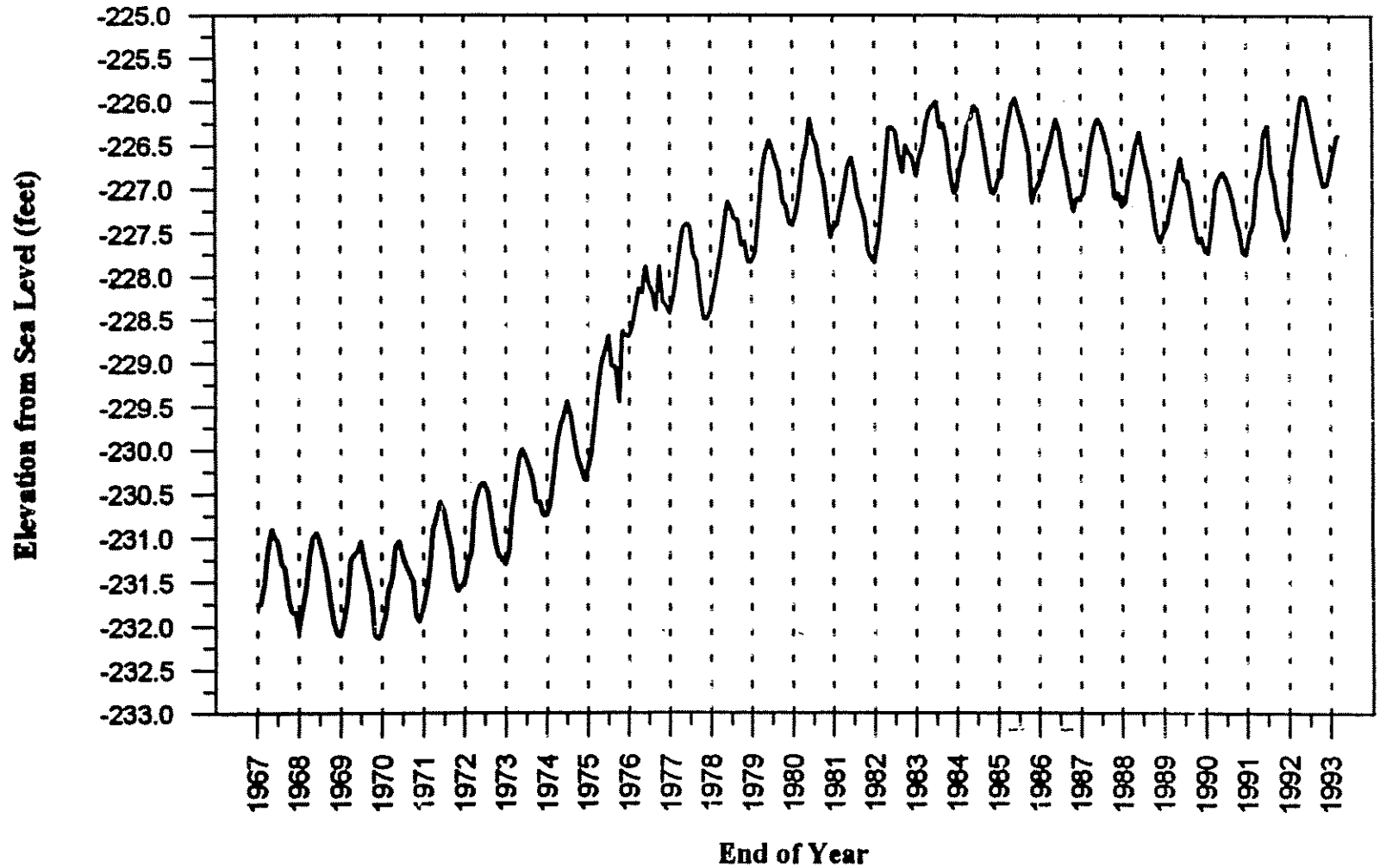


Figure 1-2
Historical Annual Variation of Salton Sea Water Surface Elevation (1967-1993)

normally reached in May and lowest elevations occurring in November each year. The annual cycle has remained fairly constant over time and generally coincides with the onset of the growing seasons in Imperial, Coachella, and Mexicali Valleys each year.

During the late 1970's to about 1985, however, increased precipitation on the watersheds of the Colorado and Gila Rivers resulted in larger diversions occurring in Mexico that ultimately yielded greater inflows to the Salton Sea. The increased flows from Mexico, and higher than normal precipitation levels in the Imperial Valley, significantly increased the Salton Sea water surface elevation. The rising trend peaked in 1985 with record breaking high water elevation, resulting in inundation of public and private lands adjacent to the Salton Sea. In an effort to prevent further inundation, private landowners reconstructed and elevated the levels of the dikes originally constructed in the 1960's.

Since 1985, the level of the Salton Sea experienced a generally declining trend. In 1992, the elevation again began to rise, reaching record high levels in 1993 and 1994 that surpassed the 1985 elevation. Increased precipitation in the Colorado and Gila River watersheds, as well as high summer humidity resulting in lower evaporation rates on the sea were the primary reasons for the increased elevations.

1.2 Current Conditions

Rainfall in the winter of 1994-1995 has been abnormally high, and higher than normal summer humidity resulting in lower evaporation rates on the sea has added to the high water levels set in 1993 and 1994 (Figure 1-3). As a result of the 1994-1995 storms, Imperial County has been declared a Federal disaster area. In 1996, elevation trends were similar to those in 1995 until mid May. Since then, elevation levels are similar to those observed in 1994.

Based on normal inflows, many containment dikes along the southern shoreline are in danger of overtopping, unless actions are taken to increase the height and stability of the dikes. Additionally, rising water levels have restricted the drainage capabilities of lands in close proximity of the sea and further increases in elevation will aggravate the problem. In response to the high water levels, the Water Conservation Advisory Board (15 farmers appointed by the IID Board of Directors) requested that the IID investigate and approve the implementation of a program to raise the Salton Sea dikes and improve the drainage system (Resolution 94-1).

IID has developed the Salton Sea Project to prevent further intrusion of Salton Sea on to public and private lands and to improve the drainage of lands currently impacted by the high level of Salton Sea. Due to the rainfall received in 1995, the action has been designated an emergency action and is on an accelerated schedule for completion. It is estimated that 5,610 acres of land are threatened by overtopping of the dikes.

1.3 Permit Actions

A meeting with USFWS and CDFG representatives was held at the IID on February 24, 1995 to provide an overview of the actions proposed under the Emergency Salton Sea Project and to describe the activities subject to Section 404 permits under the Clean Water Act, as amended. USFWS has outlined the Service's approach to the project and provided a list of species that may occur in the area of the Salton Sea (USFWS letter dated March 9, 1995).

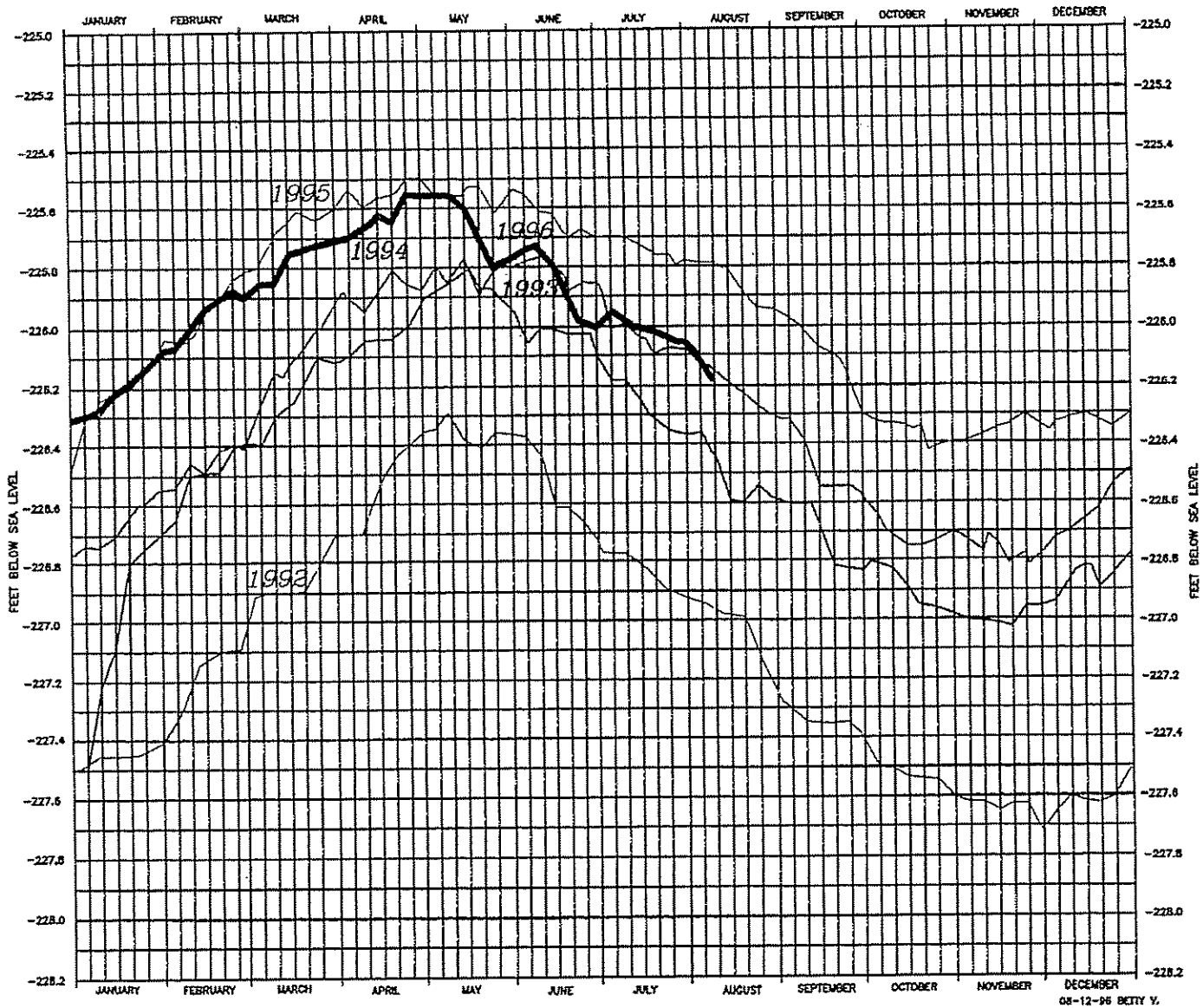


Figure 1-3
Salton Sea Water Surface Elevation
1992 - 1996

CH2MHILL

Due to the emergency nature of the project activities, the Salton Sea Project is exempt from the requirements of the California Environmental Quality Act (CEQA) as a "Specific action necessary to prevent or mitigate an emergency" (Article 18, Section 15269(c) of CEQA). IID is required to obtain a Water Quality Certification under Section 401 of the Clean Water Act from the Regional Water Quality Control Board and meet the requirements of Nationwide Permit No. 3 under Section 404 of the Clean Water Act from the Corps for the dike reconstruction element of the project.

Although the project is exempt from CEQA, it is not exempt from the requirements of the Federal Endangered Species Act of 1973, as amended. The project has been determined to be exempt from the requirements of the California Endangered Species in accordance with the proclamation of the Governor of California. The Biological Assessment provides an analysis of potential impacts of project elements on threatened, endangered and candidate species in the Imperial Valley and at the Salton Sea.

2. Project Description

The project to be constructed by IID consists of three actions to contain rising water levels in the Salton Sea and improve drainage of irrigation water discharging to the sea through the New and Alamo rivers and irrigation drains. These three elements are described below.

2.1 Dike Reconstruction

Protective dikes on the southern shoreline of the Salton Sea have been reconstructed to raise the elevation of the dikes and to provide increased stability to heightened dikes. This work was undertaken in early 1995 and is completed. Assessment of impacts of this action is not included in this BA.

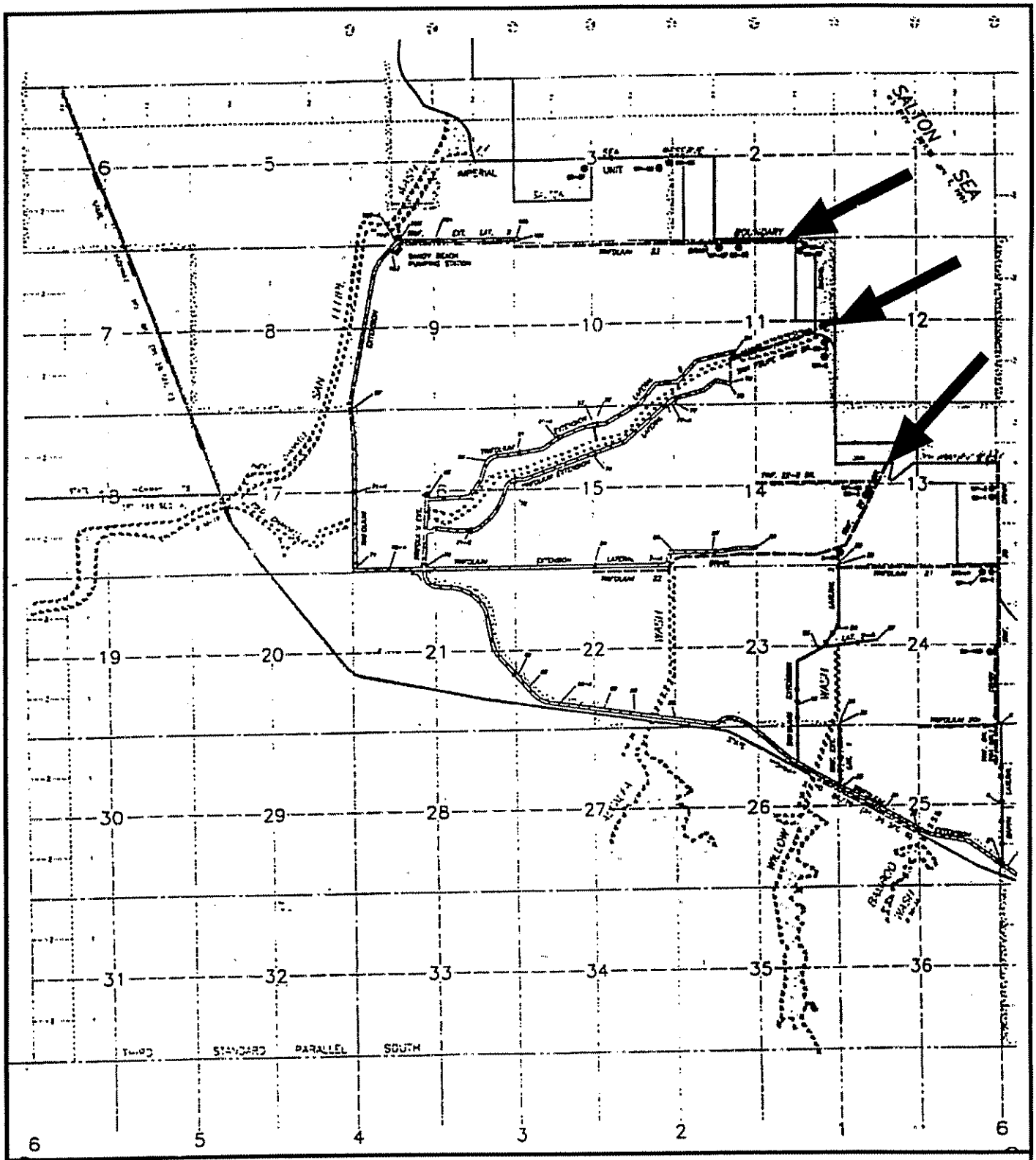
2.2 River Outlet Maintenance of the New and Alamo Rivers

The maintenance requirements for the New River and the Alamo River are the same at their inflow to the Salton Sea. Depending on the need, annual or biannual dredging of the outlets is required to remove accumulated sediments. Dredging activity extends 2.5 miles and 1.5 miles upstream from the mouths of the New and Alamo rivers, respectively. This operation is necessary to maintain the rivers' water surface at a safe and manageable elevation and to efficiently pass storm events without threat of overtopping the adjacent banks and inundating private lands adjacent to the rivers and around the Salton Sea.

This project was completed following consultation with the Corps and the USFWS. It is described and discussed in detail in a separate biological assessment (CH2M HILL, 1995).

2.3 Drain Dike and Pump Systems

Currently, elevated water levels of the Salton Sea cause the stagnation or reversal of water flows in the drains and as a result, the agricultural areas located upstream along the drains are subject to flooding of the tile drainage system. To reduce current restrictions on the drainage capability of the fields adjacent to the sea and minimize potential problems in the future, IID proposed to construct dikes on 11 of the drains discharging to the southern portion of the Salton Sea. As of October 1996, the Pumice drain pump station has already been built and began operation on July 19, 1996, whereas the remaining ten remain to be constructed. A short description of the Pumice drain pump station is provided below. Figure 2-1 shows the IID irrigation and drainage system and the general location of drains included in the proposed project. Locations of the 11 drains are shown on Figures 2-2, 2-3, 2-4 and 2-5. A tentative construction schedule is presented in Table 2-1.

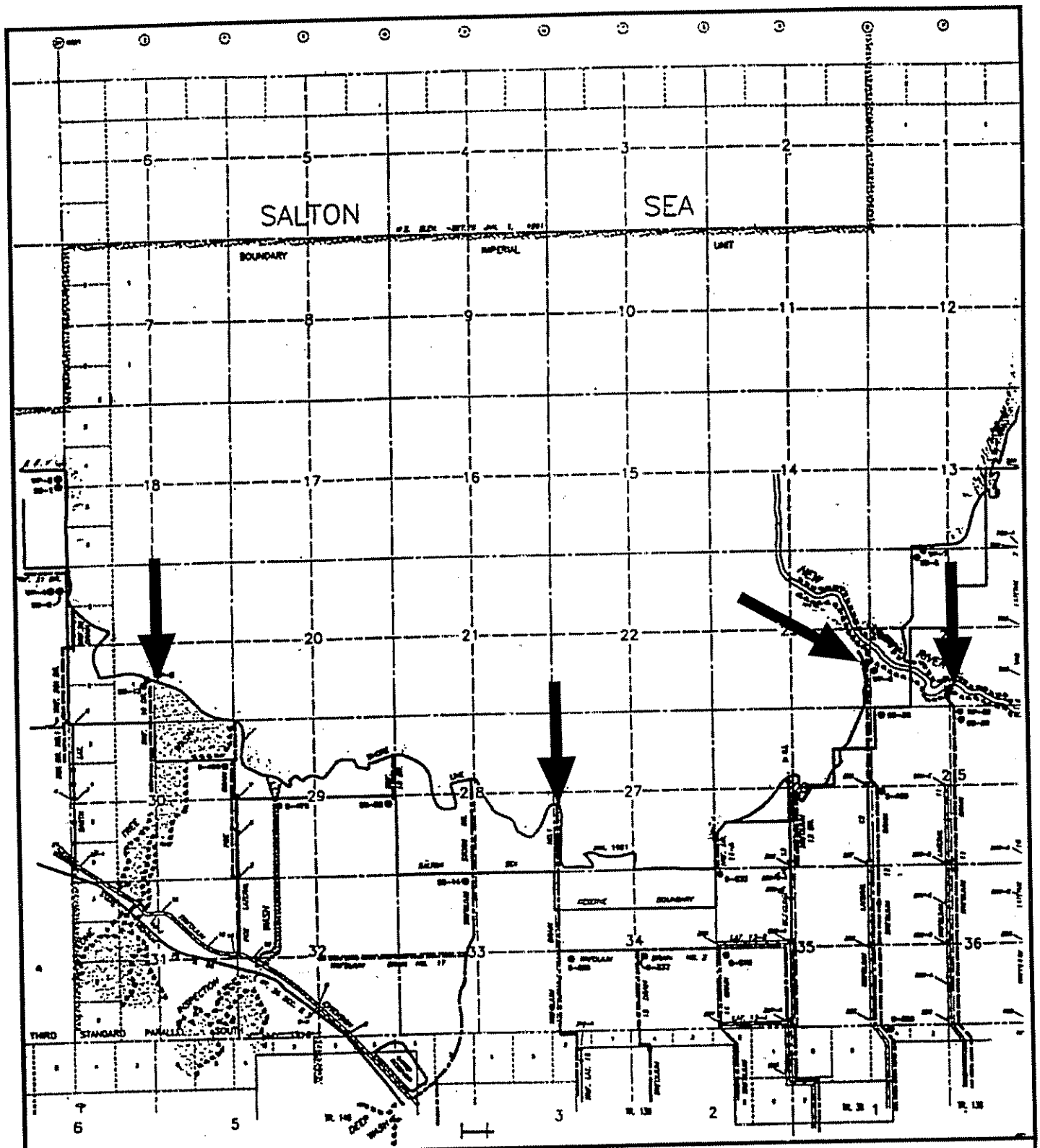


Trifolium 22 Drain
Trifolium 23 Drain
San Felipe Wash Drain

Note: Drains indicated in bold are included in the proposed project.

Figure 2-2
Drain Locations Near San Felipe Creek

CH2M HILL



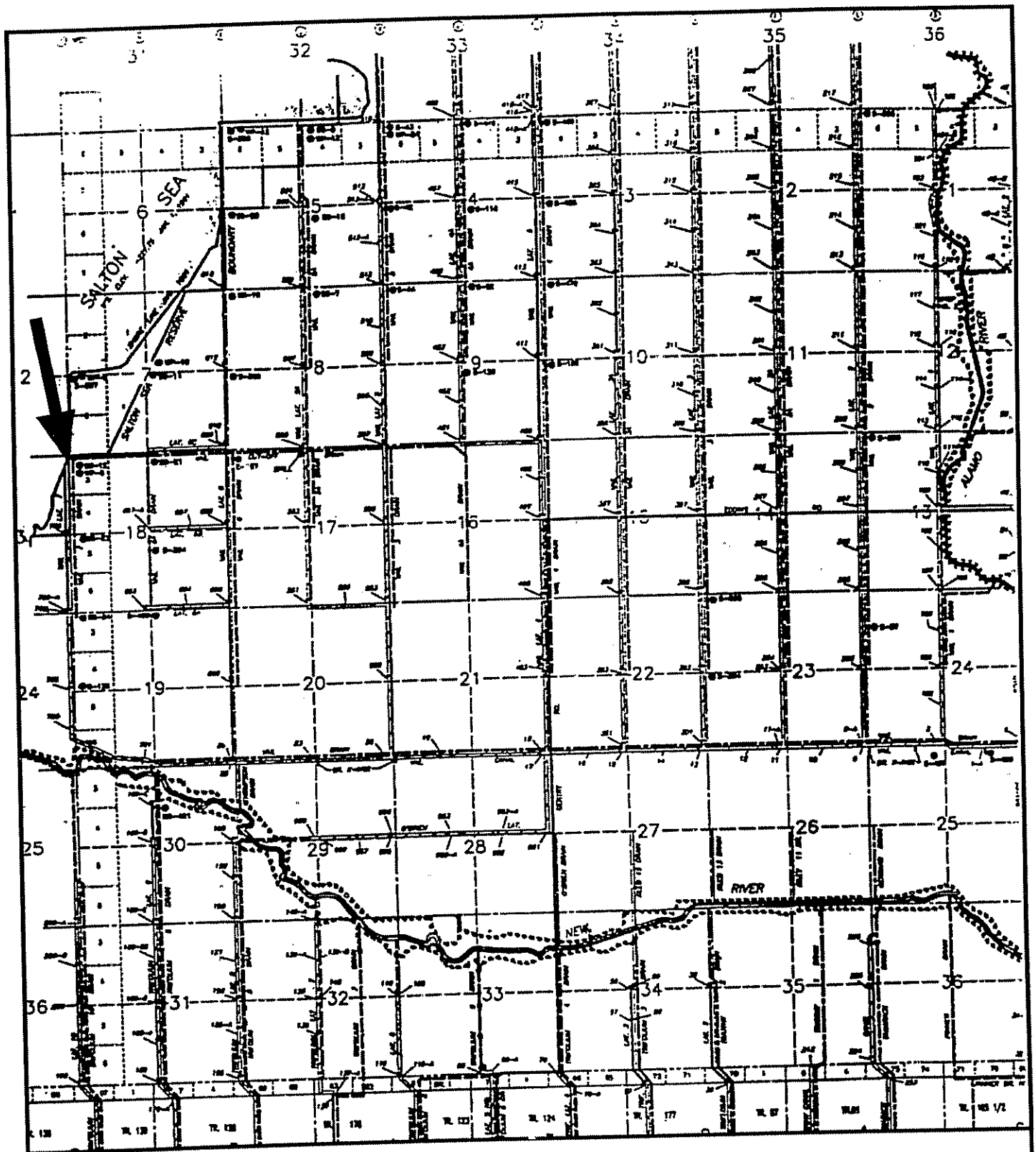
New River outlet channel
Trifolium 11 Drain
Trifolium 12 Drain
Trifolium 13 Drain
Trifolium 14A Drain
Trifolium Drain No. 1
Trifolium Storm Drain
Trifolium 18 Drain
Poe Drain
Trifolium 19 Drain
Trifolium 20A Drain
Trifolium 21 Drain

Note: Drains indicated in bold are included in the proposed project.

Figure 2-3
Drain Locations Near New River

CH2M HILL

110099.99.ZZ River Maps 8/95 SKK

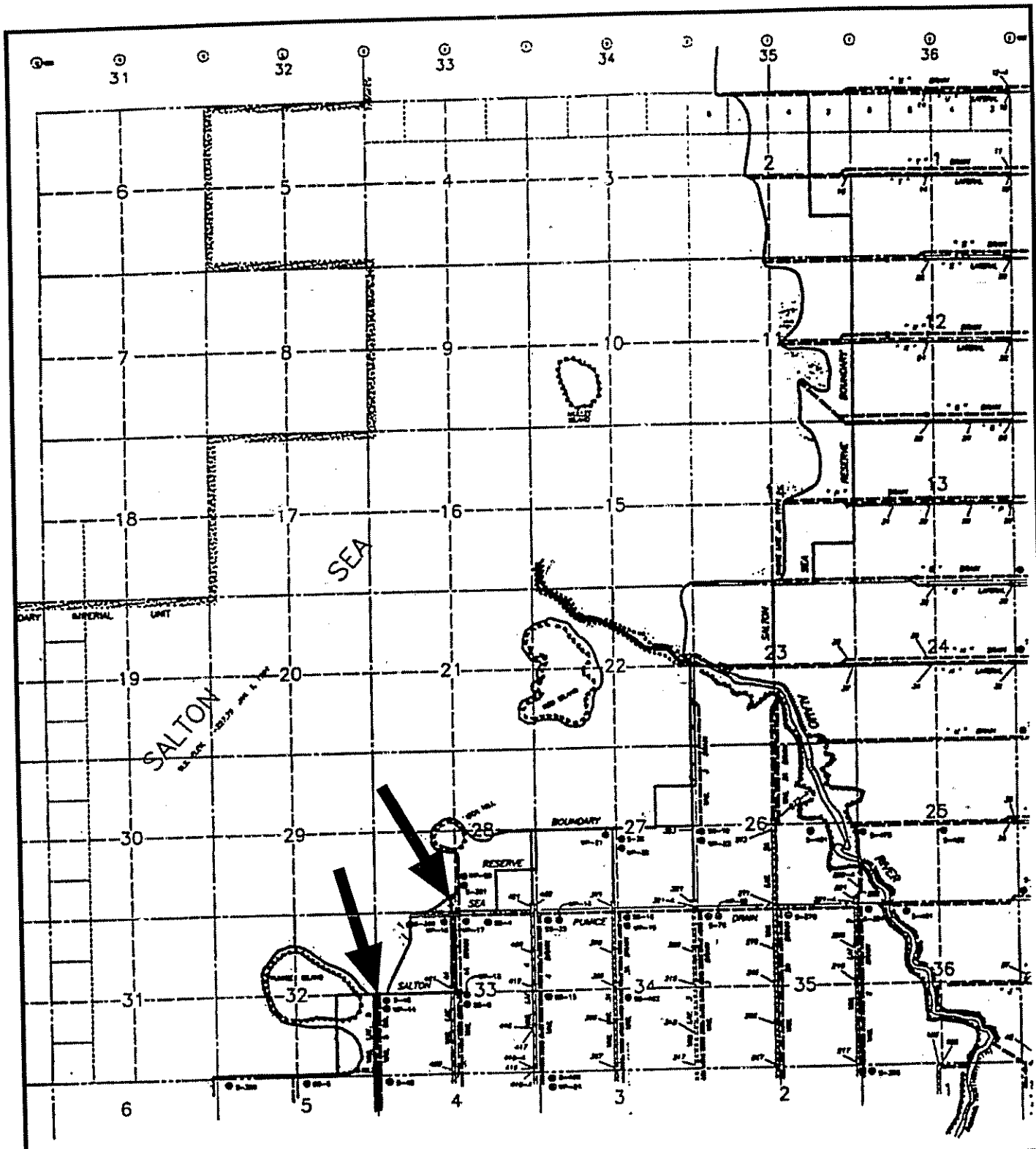


Vail Cut-off/Vail 7 Drain
Trifolium 9 Drain
Trifolium 10 Drain

Note: Drains indicated in bold are included in the proposed project.

Figure 2-4
Location of Vail Cut-off/Vail 7 Drain

CH2MHILL



Alamo River outlet channel
Vail 2A Drain
Vail 3 Drain
Vail 5 Drain
Pumice Drain

Note: Drains indicated in bold are included in the proposed project.

Figure 2-5
Drain Locations Near Alamo River

CH2MHILL

110099.99.ZZ River Maps 8/95 SKK

TABLE 2-1
Drains Affected by the Proposed Dike and Pump Project

Drain	Reach	Miles of Drain to be Upgraded
Pumice	1	11
Vail 5	2	2
Vail Cut-off	1	8.5
Vail 7		0.5
Trifolium 11		2
Trifolium 12	3	2.5
Trifolium No. 1	3	2
Trifolium 19	3	0.5
Trifolium 22	2	2
San Felipe Wash Drain	2	0.5
Trifolium 23	2	1.75

Drains that are diked off from the Sea would continue to discharge through a pumping and piping system to be installed adjacent to the dike on each drain. The proposed project consists of the following actions:

- A dike will be constructed at the outlet of each drain utilizing earthen material from the nearest borrow area
- The channels of drains will be dredged to an elevation sufficient to restore the drainage capability of the impacted fields
- Pumps will be installed near the outlet of each drain to lift water over the dike and into the Salton Sea
- Overpour weirs will be constructed in the dikes where possible to facilitate drain flows into the Salton Sea at selected elevations in case of pump failure or storm flows in excess of pump capacity

Preliminary design of the dike and pump station installations are in preparation. Site-specific channel and dike conditions at each drain will affect the design and placement of system components. Construction of the various pumping stations will commence as soon as feasible upon permitting of the project by the regulatory agencies. The exact construction schedule is to be determined.

The Pumice drain pump station was built as described above and began operating on July 19, 1996. Since commencement of operation, the Pumice pumping station has not provided any observable adverse impacts to wildlife or habitat. Numerous migratory waterfowl have been seen swimming in close proximity to the pump discharge site without any detrimental affects. Photos 1 through 4 depict the completed project.

TABLE 2-2
Pumice Drain Pump Station - Photograph Descriptions

Photo Number	Photo Description
1	Pumice Drain; pump station inlet (background), bypass inlet (foreground)
2	Pump station
3	Pump discharge to Salton Sea
4	Pump discharge and bypass outlet box

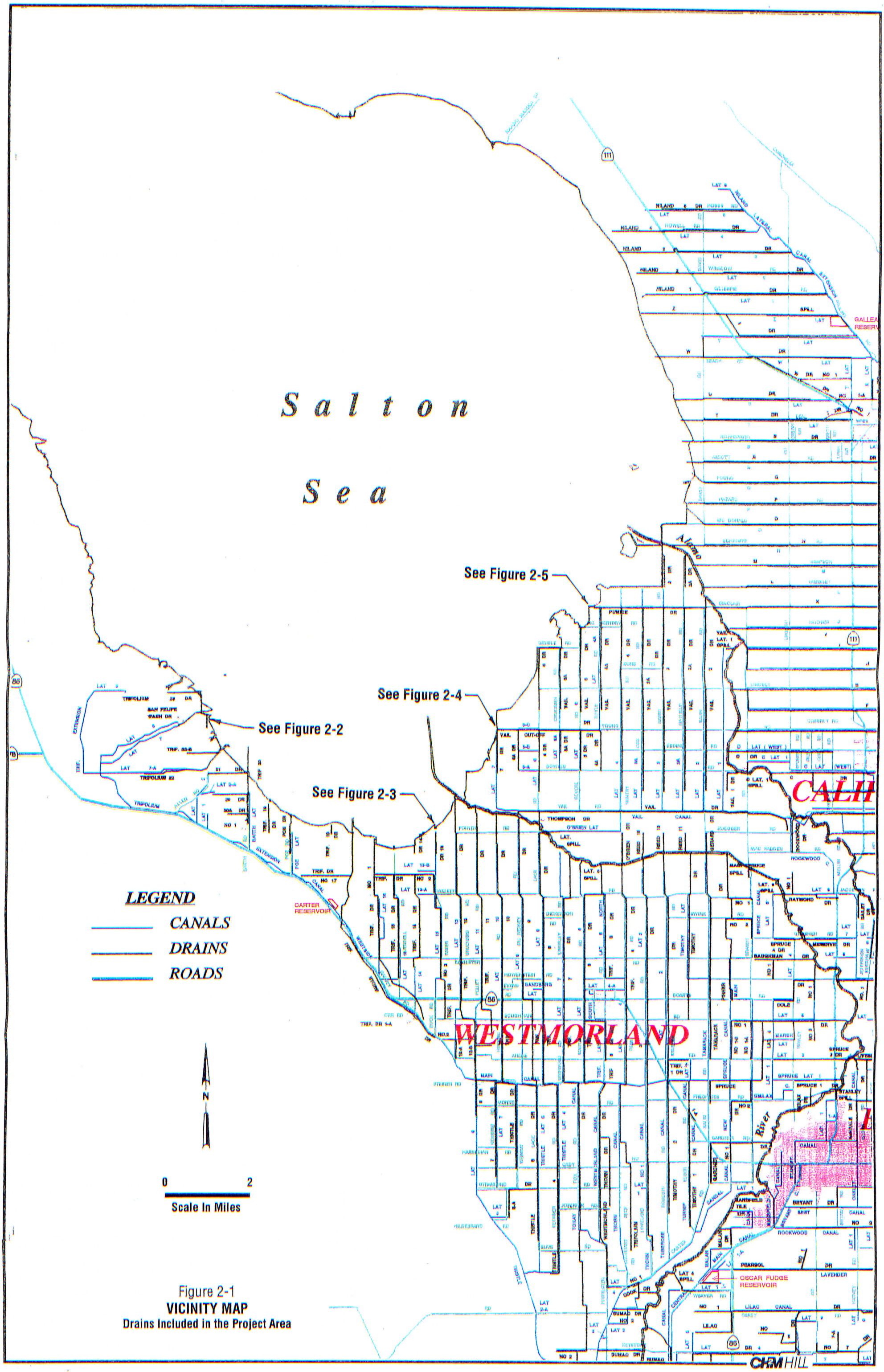


Figure 2-1
VICINITY MAP
Drains Included in the Project Area